

Notice of Allowability

Application No.

10/799,811

Examiner

Matthew C. Landau

Applicant(s)

HOFFMAN ET AL.

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the RCE filed August 8, 2007.
2. ☒ The allowed claim(s) is/are 1-16 and 31-46.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Timothy Myers (Reg.#42,919) on September 19, 2007.

The application has been amended as follows:

Cancel claims 17-30.

31. (Currently Amended) A semiconductor device formed by steps, comprising:
- providing a drain electrode;
 - providing a source electrode;
 - providing a precursor composition consisting of ~~that includes~~ one or more precursor compounds selected from the group consisting of: zinc oxide, cadmium oxide, gallium oxide, indium oxide, zinc-gallium oxide, cadmium-gallium oxide, and cadmium-indium oxide;
 - depositing a channel including the precursor composition to form a multicomponent oxide from the precursor composition contacting the drain electrode and the source electrode, wherein the multicomponent oxide is of an amorphous form;
 - providing a gate electrode; and
 - providing a gate dielectric positioned between the gate electrode and the channel.

Election/Restrictions

This application is in condition for allowance except for the presence of claims 17-30 directed to an invention non-elected without traverse. Accordingly, claims 17-30 been cancelled.

Terminal Disclaimer

The terminal disclaimer filed on September 19, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 7,242,039 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

Claims 1-16 and 31-46 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claims 1 and 39, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including the channel includes one or more metal oxides that include zinc-gallium, cadmium-gallium, and cadmium-indium, and wherein at least one metal oxide of the channel is of an amorphous form.

Regarding claim 14, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including wherein the channel includes one or more compounds selected from the group of formulas including $A_xB_xO_x$, $A_xB_xC_xO_x$, and $A_xB_xC_xD_xO_x$, and wherein each A is selected from the group of Zn, Cd, each B is selected from the group of Ga, In, each C and D is selected from the group of Zn, Cd, Ga, In, each O is atomic

Art Unit: 2815

oxygen, each x is independently a non-zero integer, and wherein each of A, B, C, and D are different.

Regarding claim 31, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including providing a precursor composition consisting of one or more precursor compounds selected from the group consisting of: zinc oxide, cadmium oxide, gallium oxide, indium oxide, zinc-gallium oxide, cadmium-gallium oxide, and cadmium-indium oxide; depositing a channel including the precursor composition to form a multicomponent oxide from the precursor composition contacting the drain electrode and the source electrode, wherein the multicomponent oxide is of an amorphous form.

Regarding claim 36, the reasons for allowance were provided in the Office Action mailed on June 13, 2006.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is 571-272-1731. The examiner can normally be reached on 9:00AM - 5:30PM.

Art Unit: 2815

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Matthew C. Landau
Primary Examiner
Art Unit 2815
9/24/07